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STANFORD UNIVERSITY SCHOOL OF MEDICINE  
Department of Genetics

JUL 24 1970

Dr. John S. Foster  
Director of Defense Research and  
Engineering  
Department of Defense  
Washington DC 20301

Dear Dr. Foster

May I briefly share with you my concern about the serious side-effects of defense research in chemical weaponry which are amplified by carelessness in the release of dangerous information. I have touched upon this in the enclosed article, and will illustrate it with the testimony given by General William W. Stone before the House Armed Services Committee last summer (see attachment 2). (att 1)

This concerns the concept of "binary chemical munitions", to which I have since seen a couple of references which led me to trace this source. It is possible that there has been some earlier public reference to this concept, and if so it would mitigate my criticism, (and I would appreciate your sharing any such reference with me.) Even so, this utterance undoubtedly added to the public attention given to this idea, and to the plausibility of its implementation, about which previous doubts might have deterred further experimentation outside the defense department.

You may believe that other superpowers are already privy to such an approach, but this may miss the point of what I believe to be the central responsibility of the U.S. to discourage the further proliferation of such weapons concepts to other countries and groups much more likely to make aggressive use of them.

The publication of this concept may well put the production of a nerve gas munition in the hands of psychotic and guerrilla groups who would, until now, have been effectively deterred by the unmanageable dangers of working with such a device. The same skills that go into the clandestine synthesis of LSD and other chemicals may become available, for example, for an attack on the Pentagon, or the President, or other vulnerable targets.

In the same hearings, at p.2316 you express your own concern about security policy; and of course, many kinds of technical information should be considered for wider publicity if the public is to participate in a meaningful way in the formation of national policy. But I hope you can also find a way to deal with ways of inhibiting the release of information of this kind that may be quite dangerous to our national security whether or not the USSR already has access to it. I am not sure whether this should come under the heading of formal security classification; surely it does deserve to be a matter of responsible discretion.

Yours sincerely,

JOHN S. FOSTER

P.S. We had done some work ourselves on the development of a "binary" reagent, for the rather different purpose of making a system that could survive launchtime sterilization and spaceflight and would be applied to Viking or Voyager style missions.

LB 1356

9/7/65

6,6'-Dihydroxynaphthofluoran Phosphate: A  
New Fluorogenic Substrate for Phosphatase

J. W. Westley

Fluorometric Assay for Phosphatase

DEPARTMENT OF GENETICS  
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The soil phosphatase activity was shown to be inhibited by the addition of inorganic phosphate to the assay. Heating the soils for four days at 135° resulted in complete loss of activity. Since one of the primary reasons for sending vehicles to the planets is to search for life, we must be certain the life we detect is not carried along from Earth by the vehicle itself. Therefore, great precautions must be taken to avoid the introduction of Earth organisms to the other planets. This introduces the further requirement that all vehicle components and chemicals used in the device do not deteriorate under the standardized conditions of sterilization (24 hours at 135°). There was considerable decomposition of 6,6'-dihydroxynaphthofluoran phosphate (NFP) after this treatment, but the problem was overcome by separately sterilizing the fluor (dissolved in pyridine) and the phosphorylating agent (phosphorus oxychloride) and then carrying out the phosphorylation in situ before the addition of buffer solution and soil.

Gen. Stone HASZ 91-14

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Let me now reiterate briefly our overall policy-guiding studies and analyses. They are viewed as essential tools of management, an integral part of executive or command responsibility. They are used only where we expect a substantive contribution to solving essential problems and to clarifying critical issues on important military decisions, and only where the results of the study will receive careful consideration by the appropriate user.

You can see from the table that our FY 70 budget request has been carefully reviewed so that the total funding request is roughly equal to last year's program, which is tantamount to a 5% reduction because of the increased cost of this work. Some of these funds will go to the Federal Contract Research Centers for short-term projects, but note that I have separated these more general study activities from those assigned directly, on a long-term basis, to the FCRC's. (I will discuss the FCRC's and present the FY 70 request for FCRC's later in my statement.) I urge you to support this request because the proposed studies are significant and have been screened rigorously.

#### 6.5 SECURITY POLICY ON TECHNICAL INFORMATION

Questions have been raised during the past year about what some consider to be the large volume of valuable but unclassified U.S. military technology disclosed in open publications and thus made freely available to potential enemies. The Department of Defense fully appreciates this concern to make sure that information requiring protection in the interests of national defense and foreign policy is adequately safeguarded.

Thousands of DoD scientific and technical personnel must determine each day what specific information needs protection and what does not. The basic dilemma in these decisions is, on one hand, to encourage the maximum interchange of technical information within the scientific and technical community of the Free World for our own benefit and yet, on the other hand, to minimize any free technical assistance to countries whose interests may not coincide with ours.

I believe there is general agreement that the single best method of protecting important military technical information is the use of proper security classification. As a general requirement within the DoD, information—and here I am quoting the formal definition—"the unauthorized disclosure of which could be prejudicial to the defense interests of the Nation" must be classified. We have what I consider to be a solid policy to provide technical classification guidance to personnel at all levels within the Department to help them make the decisions on classification.

You must understand that the U.S. technical community depends heavily and thrives upon the process of open debate. Without debate in most critical areas of defense R&D, our current technical superiority would be jeopardized, just as surely as it would be if classified information were compromised.

Nevertheless, because of our continuing concern that DoD policies and practices do the best possible job of safeguarding technical information, we have been reevaluating all directives and procedures concerning this responsibility. The purposes of this reevaluation are to ensure, first, that the intent of Congress as expressed in relevant statutes is fulfilled; second, that procedures for identifying and safeguarding information that requires control are effective and as simple in application as possible; and, third, that the public and the scientific and technical community have free access to all information that does not qualify for protection under security directives or under other criteria established by law. This reevaluation is currently in progress. Secretary Laird and I will keep the Congress informed as conclusions and recommendations are formulated and approved.

#### 6.6 IN-HOUSE LABORATORIES

I will give you a brief progress report on our in-house laboratories. We have 80 such activities spending about \$1.8 billion in RDT&E funds, split about equally between our in-house projects and the contracts managed by in-house technical staff.

*Changing Role and Structure:* In the past, we have had many individual laboratories but no effective system for integrating them within the DoD in terms of major problem areas. Our organization has been fragmented along relatively narrow technological areas and, as military needs arose, few organizations were capable of examining the total problem. Thus we have placed emphasis for sev-

A comparison of the fiscal year 1965 and fiscal year 1968 funds for the total Department of Defense chemical and biological program in R.D.T. & E. and PEMA indicates the shift in effort from R.D.T. & E. to PEMA and shows what the PEMA funds were primarily for—smoke, flame, incendiary, herbicides, and riot control agents for support of Southeast Asia.

(b) What have we accomplished over the past few years with our R.D.T. & E. funds? The state-of-the-art has significantly advanced in rapid detection of biological agents. The first automatic chemical agent alarm was standardized. A light weight protective mask was developed and is now in use in Vietnam in conjunction with CS operations. A collective protection field shelter, the CB pod, is currently undergoing engineering and service test. The modular concept for providing CB protection for vehicles and vans is in the engineering development stage. Seven CS munitions and a man portable flame rocket system (FLASH) have been developed and fielded to Vietnam. An improved mechanized service unit to support tracked flame throwers has been sent to Vietnam. A binary munition is being developed which consists of two separated nonhazardous chemicals which mix only after the munition is fired and is on its way to the target. Only after firing do the two nonlethal substances mix to form a lethal chemical agent. This binary mechanism will solve many of our safety problems in production, storage, transportation, and demilitarization.

Looking now at the future of our R.D.T. & E. program, if there is a \$16 million cut in the CB offensive portion, the CB program will have only a defensive focus permitting development of individual and collective protection equipment and shelters; CB agent detection, warning and sampling devices; decontamination materials and equipment; and in the medical area, CB treatment, prophylaxis and diagnostic techniques. Testing to satisfy requirements of the unified and specified commands and the services could not be conducted. Exploratory development would have to be discontinued, on the effectiveness of new lethal compounds and new technology. This information is required to assess our own vulnerability, to develop defenses, and to develop munitions which are safe to produce, transport, and store.

We also feel that the \$16 million cut goes beyond the offensive program and would seriously degrade the research program on new and more effective riot control and incapacitating agents, the screening of large numbers of toxic materials discovered by industry, and the development of physiological and pharmacological data.

If no future lethal offensive R.D.T. & E. is permitted, our offensive capability will remain static while our potential enemies continue to advance their technology. The defensive program will henceforth be based on the results of offensive R.D.T. & E. programs conducted to date. This would provide adequate defenses against agents known in the 1960's but would leave us vulnerable in the future to agents and weapons that may be developed by others in the 1970's. Thus, as time passes, we will be increasingly uncertain as to our true vulnerability in the CB area.